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ABSTRACT

An "overjustification effect" is inferred if following reward for an intrinsically interesting activity, individuals subsequently show less interest in the activity than do comparable individuals who receive no reward. It is not clear which situations produce this effect and which produce an opposite or "reward" effect. To determine whether reward value is negatively or positively associated with the overjustification effect or whether reward value interacts with competency feedback, 96 college students were asked to play four games of the electronic game, Simon. Three levels of payment (no payment, $0.90, and $3.00) and two levels of verbal feedback (no feedback and favorable competency feedback) were used. Three dependent measures were analyzed: amount of play during an 8-minute waiting period, liking indicated on a 7-point scale, and number of hours volunteered for a similar experiment. Results indicated that decreased postcontingency play, an overjustification effect, occurred only for subjects who received both higher payment and favorable feedback on their performance. This result which is not congruent with much of the overjustification literature, was interpreted in terms of Levine's notion of perpetual contrast. It may be that a combination of money and favorable feedback functioned as a higher reward than either factor alone and only the combination was large enough to produce the contrast effect. (JAC)

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Overjustification: Constraint, Contrast, or Competence?

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Overjustification: Constraint, Contrast, or Competence?

Abstract

Magnitude of reward and competency feedback were varied in a study examining three views of the overjustification effect. Three levels of payment were used (no payment, $0.90, and $3.00) and two levels of verbal feedback (no feedback and favorable competency feedback). Results indicated that decreased postcontingency play, an overjustification effect, occurred only for subjects (college students) who received both higher payment and favorable feedback on their performance. This result, which is not congruent with much of the overjustification literature, was interpreted in terms of Levine's notion of perceptual contrast.

An "overjustification effect" is inferred if, following reward for an intrinsically interesting activity, individuals subsequently show less interest in the activity than do comparable individuals who receive no reward (e.g., Deci, 1971; Lepper, Green, & Nisbett, 1973). Several studies have failed to find the effect, however, (e.g., Feingold & Mahoney, 1975; Reiss & Sushinsky, 1975), and it is by no means clear which situations reliably produce the effect and which produce an opposite or "reward" effect. Recently, several writers have attempted to specify those factors which are critical to the occurrence of overjustification, and the present study examined three of these viewpoints.

Williams (1980) has suggested that the overjustification effect is related to two components of reward: reward value, assessed by a measure of preference or effect on behavior, and behavior constraint, the extent to which one views one's behavior as controlled by the reward. The latter component produces the decrement in behavior termed an overjustification effect; the former component may mitigate this decrement and produce an increase in behavior termed a reward effect. Thus, Williams hypothesized that "the greater the reward value, the less the overjustification effect" (p. 602), and in a study with elementary school children he found that less attractive comic book rewards produced a decrease and more attractive ones an increase in postcontingency game-playing behavior.

Levine, Broderick, and Burkart (Note 1) propose that the overjustification effect is the result of perceptual contrast between the perceived attractiveness of the task and that of the reward. Thus, if the reward is more attractive than the task, subjects will perceive the task as relatively less attractive and the overjustification effect will tend to occur. On the other hand, if the reward is less attractive than the task, an opposite or reward effect will tend to occur. Thus, Levine et al.'s prediction is roughly the opposite of that of Williams: Higher reward value is associated with a greater overjustification effect. Levine et al. also indicate that a contrast interpretation predicts a decrease in intrinsic value

regardless of whether the reward is given contingent on performance or non-contingently.

For Rosenfield, Folger, and Adelman (1980) the important factor in producing overjustification is not the size of reward alone but an interaction between size of reward and the extent to which the reward signals competence. If reward provides feedback which indicates that the individual has performed competently or successfully, then higher rewards are associated with a reward effect. On the other hand, if the reward does not provide competency feedback, then greater rewards are associated with an overjustification effect. In support of this notion, Rosenfield et al. found that when college student subjects thought payments indicated they were in the top 15% on a crossword game task, larger rewards increased liking of the task and the postcontingency play; when subjects were not given "competency" feedback on their performance, the opposite result, that is, the overjustification effect, occurred.

In the present study the factors of amount of reward and competency feedback were manipulated in attempt to reflect on the viewpoints discussed above. Our question was this: Is reward value negatively associated with the overjustification effect (Williams), positively associated with the overjustification effect (Levine et al.), or does reward value interact with competency feedback (Rosenfield et al.)?

Method

Subjects

Subjects were 96 volunteers from an introductory psychology class. Half the subjects were males and half were females.

Apparatus

The apparatuses were an electronic game, Milton Bradley's Simon, and a universal reinforcer dispenser. The Simon game was modified so that each sound was amplified and activated a counter in a room adjacent to the experimental room.

Overview and Design

All subjects were asked to play four games of Simon, an electronic game in which the player repeats patterns of sound and light produced by the machine. Half

the subjects (the no-feedback condition) were given no instructions pertaining to the consequences for their performance. The remaining half (the competency-feedback condition), in a manipulation patterned after Rosenfield et al., were told that the apparatus would deliver poker chips contingent on their performance level, as follows: blue chips indicated excellent performance, the top 15%; red chips indicated average performance, the middle 70%; and white chips indicated poor performance, the bottom 15%. In fact, all subjects in the feedback condition received three blue chips, one after the second, third, and fourth games. (For credibility, in case subjects had a bad game, the chips were said to indicate average performance.) Thus, subjects in the feedback condition were told, in effect, that they did quite well; subjects in the no-feedback condition were told nothing about their performance.

Three levels of payment crossed the two feedback conditions. In one of the three conditions nothing was said about payment, in the second all subjects were paid $0.90, and in the third subjects were paid $3.00. If subjects were in one of the no-feedback conditions, payments were said to be for participating. If subjects were in one of the feedback conditions, payments were said to be contingent on the chips they earned (high payment values in parentheses): $0.30 ($1.00) for blue tokens; $0.20 ($0.75) for red tokens; and $0.10 ($0.50) for white tokens. Since all of the subjects in the feedback conditions were given exactly three blue tokens, payments were the same as for the no-feedback subjects: nothing, $0.90, or $3.00. Thus, the design was a 2 (feedback) by 3 (payment) by 2 (sex) analysis of variance design. The dependent measures were the amount of time subjects played during an eight-minute waiting period, ratings of the game, and number of hours volunteered for a similar experiment.

Procedure

Subjects were met by the first experimenter and escorted to the experimental chamber, an 8 foot by 8 foot room. They were then seated at a table which contained Simon, a consent form, and a set of written instructions. The first experimenter

then administered a consent form, demonstrated the Simon game, and pointed out the written instructions. He also told subjects that all further instructions would be written (to keep the experimenter blind to the subjects' conditions) and presented to them under the door of the experimental room. All instructions were handled and delivered by a second experimenter who did not have contact with the subject until the end of the experiment.

At the conclusion of the four games, the second experimenter delivered a handwritten note and payment due the subject, if any, under the door of the experimental room. The note indicated that there would be a 5 or 10 minute delay (an actual 8 minutes) while the experimenter set up for the next subject. The subject was further told: "You may continue to play with the game or do whatever else you wish until I return." Amount of play was automatically recorded by a counter in the adjacent room. After the eight-minute period the first experimenter administered the rating scale and asked the subjects to write out what they thought to be the purpose of the experiment. Subjects were then debriefed and signed a statement indicating that they would not discuss the study with anyone else.

Results

Three dependent measures were analyzed: the number of electrical impulses generated by Simon during the 8-minute waiting period (an indication of amount of play), liking indicated on a 7-point scale, and number of hours volunteered for a similar experiment. The measure of the amount subjects played during the waiting period produced a main effect for payment, $F(2, 84) = 8.43$, $p < .001$, the interpretation of which is subsumed under the significant interaction between payment and feedback, $F(2, 84) = 10.62$, $p < .001$. As shown in Figure 1, decreased play occurred only in the high payment condition and only for subjects given feedback. Tukey's HSD found a difference between the feedback high reward condition and all other means, $p < .001$; no other comparisons between means were statistically significant.

There were no significant effects for hours volunteered, and while there was a significant interaction between feedback and payment on the rating scale, Tukey's HSD failed to find a difference between any pair of means.

Discussion

Since it was only in the high-payment condition that a decrement in play behavior occurred, these results clearly do not support Williams (1980), provide some support for Levine, Broderick, and Burkart's (Note 1) perceptual contrast explanation, and are exactly opposite the predictions of Rosenfield, Folger, and Adelman (1980). Under the perceptual contrast explanation, the attractiveness of Simon was reduced because it was viewed against the background of high reward ($3.00 payment), and subjects played less in the postcontingency period than when there was a lesser or no reward. It is important to note, however, that high reward produced the overjustification effect only for subjects given contingent competency feedback; Levine et al. clearly specify that a contrast interpretation does not involve contingency. While it is difficult to interpret this discrepancy in terms of the contrast hypothesis, it may be that a combination of money and favorable feedback functioned as a higher reward than either factor alone, that only the combination was a large enough reward to produce the contrast effect. We did not ask subjects to rate the pleasantness of the money nor the pleasantness of the combination of money and feedback, however, so our speculation awaits a test in another study.

Since we attempted to conceptually replicate portions of the Rosenfield et al. study, it is particularly difficult to account for the discrepancy between our results and theirs. Rosenfield et al, predicted that if reward provides favorably competency feedback, higher rewards should be associated with increased behavior; but that if reward does not provide favorable competency feedback, higher rewards are associated with decreased behavior, the overjustification effect. While our results support Rosenfield et al.'s contention that competence feedback is important, we obtained exactly the opposite results in this study.

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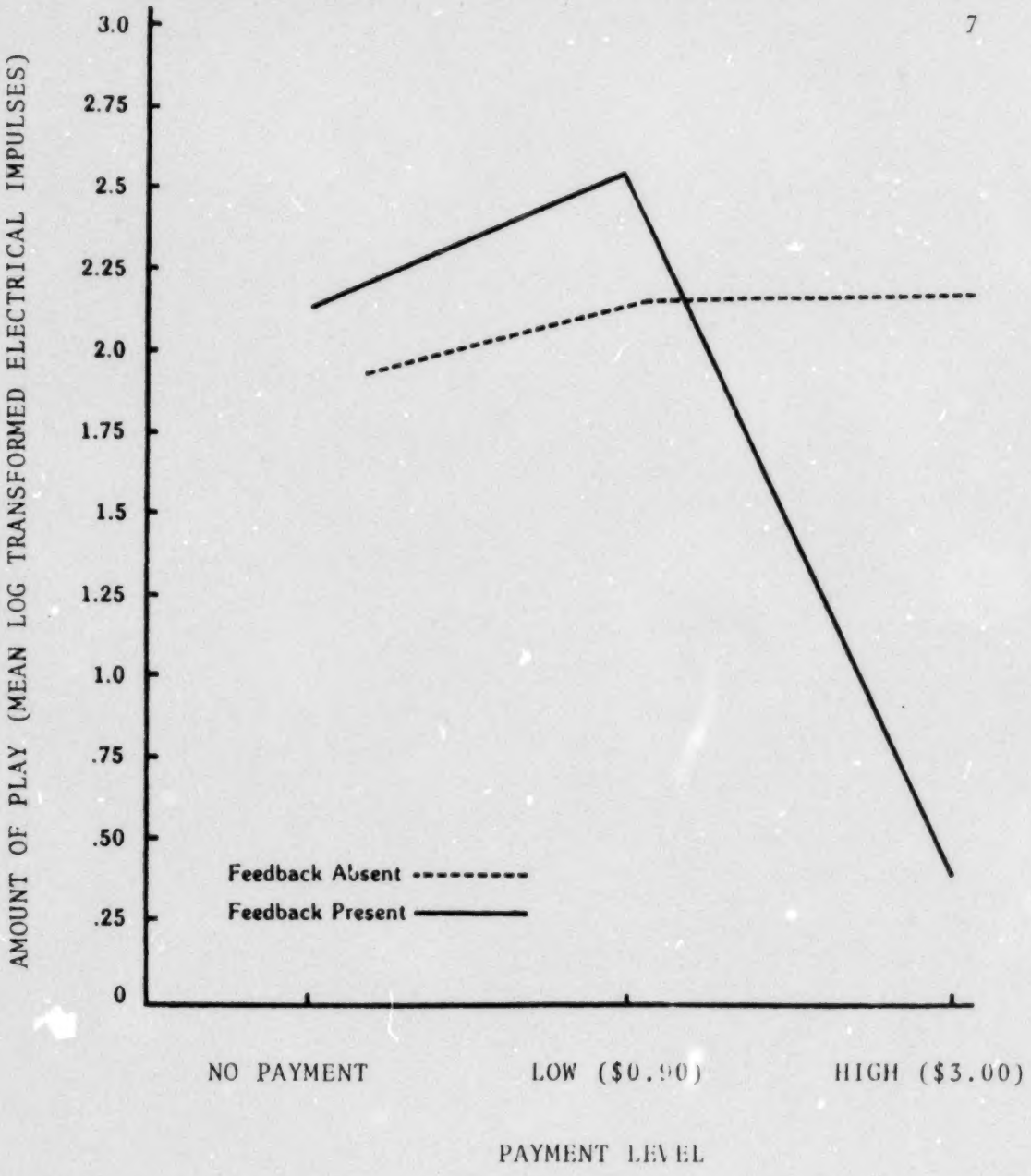

Figure 1. Amount of Play in the Postcontingency Free Time Across Payment and Feedback.